Claims:

1. (Currently Amended) A rotorcraft ~~including~~comprising:

a fuselage having a wing for providing lift during forward flight;

a propulsion source for propelling the aircraft forward during forward flight;

a rotor for providing lift during take-off and landings and for auto-rotating in a substantially unloaded condition during forward flight; ~~and~~

a tilting mast including a driveshaft extending upward from the fuselage and a tilting mast frame to tilt the tilting mast relative to the fuselage, the rotor being carried by the tilting mast; and

a cylic control assembly that selectively tilts the rotor relative to the tilting mast, the cyclic control assembly being selectively controllable so that a rotor force vector can pass through a center of gravity of the rotorcraft at all angles of tilt of the tilting mast.

2. (Currently Amended) The rotorcraft defined in claim 1, ~~further comprising~~wherein the cylic control assembly comprises:

a cyclic control; and

a spindle mounted to the tilting mast frame for supporting the rotor and to connect the rotor to the cyclic control, the cyclic control, spindle and rotor being carried by the tilting mast~~; and wherein~~

~~the tilting mast frame provides input to the cyclic control~~.

3. (Original) The rotorcraft defined in claim 2, wherein the tilting mast frame is pivotally connected to the spindle and a first fixed location on the fuselage and the cyclic control is pivotally connected to the spindle and a second fixed location on the fuselage, separate and spaced apart from the first fixed location on the fuselage, and wherein the tilting mast frame and cyclic control tilt simultaneously.

4. (Original) The rotorcraft defined in claim 2, wherein the cyclic control includes a pair of cyclic control rods, each cyclic control rod having one end pivotally connected to a fixed

location on the fuselage, the opposite end pivotally connected to a tilting component of the tilting mast frame.

5. (Previously Presented) The rotorcraft defined in claim 2, further comprising a power cylinder connected between the tilting mast frame and the fuselage to tilt the tilting mast frame along a longitudinal axis of the fuselage.

6. (Original) The rotorcraft defined in claim 5, wherein the cylinder for tilting the tilting mast frame comprises a pneumatic cylinder of sufficient volume so that a fore/aft spring rate is such that the mast fore/aft natural frequency is less than a minimum operation rotor RPM to avoid a resonance oscillation in the mast.

7. (Previously Presented) The rotorcraft defined in claim 2, wherein the cyclic control includes linkages connected to the tilting mast frame for maintaining a rotor resultant force vector through or near the aircraft center of gravity during tilting of the tilting mast.

8. (Previously Presented) The rotorcraft defined in claim 2, wherein the cyclic control includes linkages connected to the tilting mast frame and a fixed position on the fuselage such that the angular movement of the spindle is slightly less than the angular movement of the tilting mast frame.

9. (Currently amended) The rotorcraft defined in claim 1, further comprising:

at least one wing;

an angle of attack sensor; and

a controller, responsive to the angle of attack sensor, for controlling the mast tilt at selected speeds to keep the fuselage at a desired attitude, such as that required for the wing to be at an angle of attack for a ~~best~~desired lift-to-drag ratio.

10. (Previously Presented) The rotorcraft defined in claim 2, further comprising:

an airspeed sensor; and

a controller, responsive to the airspeed sensor, for tilting the tilting mast frame to a predetermined position at selected speeds as rotor lift requirements decrease.

11. (Previously Presented) The rotorcraft defined in claim 2, further comprising:

a controller positioned to tilt the tilting mast frame during horizontal flight as necessary to keep the fuselage substantially level and to tilt the tilting mast frame during a final stage of landing in an aft angular position to keep the fuselage substantially level.

12. (Original) A rotorcraft including:

a fuselage;

a rotor;

a cyclic control for controlling rotor cyclic position including a pair of cyclic control rods, each cyclic control rod having a first end and a second end, the first end pivotally connected to a fixed location on the fuselage; and

a tilting mast including a driveshaft extending upward from the fuselage and a tilting mast frame to tilt the tilting mast and to provide input to the cyclic control, a second end of the cyclic control pivotally connected to a tilting component of the tilting mast frame, both the tilting mast frame and cyclic control positioned to tilt simultaneously relative to the fuselage.

13. (Original) The rotorcraft defined in claim 12, further comprising a power cylinder connected between the tilting mast frame and the fuselage to tilt the tilting mast frame along a longitudinal axis of the fuselage.

14. (Original) The rotorcraft defined in claim 13, wherein the cylinder for tilting the tilting mast frame comprises a pneumatic cylinder of sufficient volume so that a fore/aft spring rate is such

that the mast fore/aft natural frequency is less than a minimum operation rotor RPM to avoid a resonance oscillation in the tilting mast.

15. (Original) The rotorcraft defined in claim 12, wherein the cyclic control includes linkage connected to the tilting mast frame and a fixed position on the fuselage for maintaining the rotor resultant force vector through or near an aircraft center of gravity during tilting of the mast, and wherein the angular movement of the spindle is slightly less than the angular movement of the tilting mast frame.

16. (Previously Presented) The rotorcraft defined in claim 12, further comprising:

at least one wing;

an angle of attack sensor for sensing the angle of attack of the wing;

an airspeed sensor for sensing the airspeed of the rotorcraft; and

a controller, responsive to the angle of attack sensor and airspeed sensor, for controlling the mast tilt at selected speeds to keep the fuselage at a desired attitude, such as that required for the wing to be at an angle of attack for a best lift-to-drag ratio, for tilting the tilting mast frame to a predetermined position at selected high speeds as rotor lift requirements decrease to maintain the fuselage substantially level, and to tilt the tilting mast frame during a final stage of landing in an aft angular position to maintain the fuselage substantially level.

17.- 25 (Cancelled)